Using HECHMS and WASH123D for operational water stage forecasting of KaoPing River in Taiwan

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Extreme typhoon rainfall over Taiwan usually causes severe flood damage. Since the impacts of flooding may include social, economic and environmental problems, it is very important to establish a local flood warning system to prevent or mitigate flood disasters.
In 2010, Taiwan Typhoon and Flood Research Institute (TTFRI) started Taiwan
Cooperative Precipitation Ensemble Forecast Experiment (TAPEX) that was designed for providing skillful typhoon predictions to related agencies such as CWB, NCHC, SWCB, WRA, and NCDR. To date, TAPEX has included 26 members and is run operationally 4 times a day. In each run, the 72 hours precipitation forecasts are provided.
The purpose of this study is to establish an operational local water stage forecasting system for KaoPing River in Taiwan using HECHMS as a runoff model and WASH123D as a 1D/2D coupling flood model. Precipitation forecasts provided by TAPEX are used in the forecasting system as the input rainfall data. The performance of the developed forecasting system is verified using rain gauge data and observed water stage data. In addition, a web based data monitoring system is constructed for not only collecting real-time observed data, but also displaying the model results compared with observed data.

Keywords: HECHMS, WASH123D, operational, TAPEX